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| 10/688,118 | 10/17/2003 | Kenneth Douglas Vinson | 9066M2 | 9231 |

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| EXAMINER | |
|---|---|
| CORDRAY, DENNIS R | |
| **ART UNIT** | **PAPER NUMBER** |
| 1731 | |

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| 08/31/2007 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/688,118 | VINSON, KENNETH DOUGLAS | |
| | Examiner | Art Unit | |
| | Dennis Cordray | 1731 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *24 June 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,2 and 4-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments*

Applicant's amendments and arguments filed 6/24/2007 have failed to overcome the previous rejections.

Applicant argues that Barnholz et al does not solve the same problem as the instant invention. Applicant further argues that the high molecular weight polymers of Barnholz et al increase the viscosity while the instant invention is a low viscosity composition. Applicant also argues that Barnholz et al does not disclose a range of high molecular weight polymer within that currently claimed.

With respect to Anderson, Applicant argues that there is no teaching to use the claimed low concentration of polymer, and there is no reason for one of ordinary skill to combine its teachings with Barnholz et al to make the claimed invention.

The instant invention claims a composition suitable for atomization (or forming a spray that is delivered to the target surface) without excessive aerosolization or spray fracture (droplets sufficiently small so as to not be delivered to the target surface) (see preamble of Claim 1 and Specification, p 5, lines 18-28). The compositions disclosed by Barnholz et al exhibit minimized spray fracture due to the presence of the high molecular weight polymers (Abs; p 31, lines 13-29). Thus, part of the problem solved by Barnholz et al is minimization of spray fracture, which is also the problem the instant invention solves.

The high molecular weight polymers of Barnholz et al increase the extensional viscosity of the composition to reduce spray fracture (p 31, lines 17-19). The high

molecular weight polymers of the instant invention similarly increase the extensional viscosity and reduce spray fracture (p 14, lines 21-24). The electrolytes and plasticizers lower viscosity in the instant invention (p 10, lines 6-9 and 30-33). The electrolytes and plasticizers also lower viscosity in Barnholz et al (p 21, lines 10-12; p 19, lines 9-11). It appears from the two disclosures that the viscosity is affected similarly by the same additives.

With respect to the claimed range for the high molecular weight polymers, see the rejections under 35 U.S.C. 112 and 35 U.S.C. 103 below. The claimed range is within or overlaps the broadly disclosed ranges in the instant Specification, but is outside of the particularly preferred range (p 15, lines 4-13). Given the several disclosed ranges and the one example that uses the cationic polymeric extension aid in the amount of 0.02 wt%, one of ordinary skill in the art would be led toward the particularly preferred range of 0.005 wt% to 0.01 wt % or above (pp 22-23, Example 1). None of the ranges or the example would direct one skilled in the art to select the claimed upper limit of 0.005% for the range. It is not clear from the example if the 0.02 wt% pertains to the emulsion or to the amount of actives in the emulsion. In the case that the 0.02% refers to the 40% emulsion, the amount of polymer used in the example is 0.008% by weight, which still lies above of the claimed range but within the particularly preferred range. No evidence has been submitted of any surprising results for amounts of polymer in the claimed range. The claimed upper limit is "about 0.005% by weight." The range disclosed by Barnholz et al is typically from "about 0.01 to about 5 wt%" (p 33, lines 19-20), the lower limit of which the Examiner believes is not

significantly different from the claimed upper limit, absent evidence of unexpected results.

With regard to Anderson, the reference teaches the conventional method of inverting water-in-oil emulsions containing polymers into water. Branning (6485651) teaches that it is conventional practice in the art, after inverting a polymer-containing water-in-oil emulsion into an aqueous solution, to further dilute the resulting solution for process use (col 4, lines 34-46). Inverting a water-in-oil emulsion containing a polymer as taught by Anderson would have been known to one of ordinary skill in the art at the time of the invention and he or she would have found it obvious to practice the inversion in the conventional manner and then to adjust the concentration in the inverted emulsion to the desired value.

The rejections are amended to treat the newly claimed subject matter and, in addition, a new rejection is made under 35 U.S.C. 112, also due to the amendments.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 4, 6 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The amended claims recite a range for the

high molecular weight polymer of about 0.0005 to about 0.005% by weight. The upper limit of 0.005% by weight is not disclosed as an upper limit for any of the ranges recited in the instant Specification on p 15, lines 4-11, but only as the lower limit for the particularly preferred range. Given the several disclosed ranges and the one example that uses the cationic polymeric extension aid in the amount of 0.02 wt% (pp 22-23, Example 1), one of ordinary skill in the art would be led toward the particularly preferred range of 0.005 wt% to 0.01 wt % or above. It is not clear from the example if the 0.02 wt% pertains to the emulsion or to the amount of actives in the emulsion. In the case that the 0.02% refers to the 40% emulsion, the amount of polymer used in the example is 0.008% by weight, which still lies outside of the claimed range. No evidence has been submitted of any surprising results for amounts of polymer in the claimed range.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnholtz et al (WO 02/48458) in view of Anderson (3624019) and evidenced by The Mini-Encyclopedia of Papermaking Wet Chemistry (topic: polyethylene imine (PEI), http://www4.ncsu.edu/~hubbe/PEI.htm), Pelletier et al ("Effect of Retention/Drainage Aids on Formation", BASF Corporation report) and Branning (6485651)

Barnholtz et al discloses an aqueous composition for softening an absorbent tissue (Abstract) comprising:

- A quaternary ammonium softening active ingredient (p 15, lines 24-25) that comprises at least 35% of the composition (p 53; claim 7);
- An electrolyte that can be present in an amount up to 25% of the composition (p 21, lines 14-15);
- A vehicle in which the softening active ingredient is dispersed, which vehicle can be water (p 20, lines 15, 23-24);
- Optionally, a plasticizer in an amount between 5% and 75% of the composition (col 19, lines 14-17);
- Optionally, a bilayer disruptor in an amount between 2% and 15% of the level of active ingredient (col 22, lines 27-28) ;
- A high molecular weight polymer, present in an amount between 0.01% and 2% of the composition (p 33, lines 16-20), which modifies the rheology of the aqueous composition (p 30, lines 10-12). Suitable high molecular weight polymers include polyethyleneimine, which is known in the art to be a branched, high-charge-density cationic monomer (having amine-containing pendant groups that supply cationic charges) (Mini-Encyclopedia of Papermaking Wet Chemistry, topic: polyethylene imine). Pelletier et al teaches that pure PEI has a charge density of 20 meq/g (p 2, Fig 5), thus cationic polymers containing pendant groups having the claimed charge density are implicitly disclosed by Barnholtz et al. The cationic polymers will deliver the claimed charge density to the composition or, at least, it would have been obvious to one of ordinary skill in the art at the time of the invention that the charge density is delivered.

Softening agents can also include waxes, mineral oil, silicone oil, petrolatum, quaternary ammonium compounds with long alkyl chains, fatty acids, fatty alcohols and fatty esters, many of which would form oil-in-water emulsions (p 3, lines 6-13). The particularly preferred softening active ingredient is a mono or diester quaternary ammonium compound (p 16, line 24 to p 17, line 5) having the formula

$$(R_1)_{4-m} - N^+ - [(CH_2)_n - Y - R_3]_m \quad X^-$$

wherein Y is -O-(O)C-, or -C(O)-O-, or -C(O)-O-, or -NH-C(O)-, or -C(O)-NH-;

m is 1 to 3 (mono-, di- or tri-ester);

n is 0 to 4;

each R1 is a C1-C6 alkyl or alkenyl group, hydroxyalkyl group, hydrocarbyl or substituted hydrocarbyl group, alkoxylated group, benzyl group, or mixtures thereof;

each R3 is a C13-C21 alkyl or alkenyl group, hydroxyalkyl poup, hydrocarbyl or substituted hydrocarbyl group, alkoxylated group, benzyl group, or mixtures thereof; and

X- is any softener-compatible anion.

Barnholtz et al discloses tissue paper (inherently one or more plies) made using the composition that contains approximately 47% water (which borders on and can overlaps the claimed amount of less than about 45% water) (pp 39-42, Example 1).

Barnholtz et al does not disclose adding the high molecular weight polymer via a water-in-oil emulsion containing the high molecular weight polymer. Barnholtz et al also does not explicitly disclose the claimed range for the high molecular weight polymer.

Anderson et al discloses a a method for adding a high molecular weight polymer to a continuous aqueous phase as a water-in-oil emulsion (col 1, lines 33-42, col 2, lines 12-13). The emulsion can comprise 2-75% by weight of the polymer to be commercially practical (col 3, lines 36-40). The oil to water ratio in the emulsion be from 5:1 to 1:10 as a general rule (col 2, lines 65-67). Thus the water can be present in an amount from 9% to 89% of the emulsion and the oil can be present in an amount from 9% to 81% of the emulsion. The compositional range encompasses the claimed range. Anderson teaches that inversion of the water-in-oil emulsion in water causes the high molecular weight polymer to be rapidly dispersed into the water and overcomes the problem of needing lengthy agitation times to obtain complete dissolution of the polymer (col 1, lines 16-35). Anderson also teaches that the polymers exhibit superior thickening properties in aqueous solutions (i.e.-are rheology modifiers) and are used in papermaking processes (col 1, lines 4-9).

Anderson et al teaches that cationic, anionic or nonionic high molecular weight polymers can be rapidly dissolved into aqueous solution using a water-in-oil emulsion (col 2, lines 1-11) and that the invention is capable of rapidly providing aqueous dispersions having concentrations of 0.1 to 20% by weight of water soluble polymers, which significantly overlaps the claimed range (col 2, lines 27-30).

Anderson does not disclose the claimed range for the high molecular weight polymer.

It was known to those of ordinary skill in the art as a conventional practice, after inverting a polymer-containing water-in-oil emulsion into an aqueous solution, to further dilute the resulting solution for process use (if evidence is needed, see Branning, col 4, lines 34-46).

The art of Barnholtz et al, Anderson et al and the instant invention are analogous in that they pertain to aqueous solutions containing dispersed polymers used in papermaking processes and the problem of efficiently obtaining dissolution of a high molecular weight polymer into an aqueous solution.

It would have been obvious to one of ordinary skill in the art at the time of the invention to invert a water-in-oil emulsion having the claimed composition to add the high molecular weight polymer to the softening composition of Barnholtz et al in view of Anderson et al in order to rapidly disperse the high molecular weight polymer in the aqueous solution. With regard to the claimed range for the high molecular weight polymer, note that the claimed upper limit is "about 0.005% by weight." The range disclosed by Barnholz et al is typically from "about 0.01 to about 5 wt%" (p 33, lines 19-20), the lower limit of which the Examiner believes is not significantly different from the claimed upper limit or, at least, the claimed range would have been obvious to one of ordinary skill in the art absent evidence of unexpected results. The teachings of Branning would have been known to one of ordinary skill in the art at the time of the invention and he or she would have found it obvious to practice the inversion in the conventional manner and then to adjust the concentration in the inverted emulsion to the desired value.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DRC

ERIC HUG
PRIMARY EXAMINER